IN THE CLAIMS:

Please amend the claims to read as follows:

1. (Currently amended) A collective detection method for wavelength fluctuations of signals for use in a wavelength division multiplexing optical communication system ~~including~~ , said method comprising:

~~a step of~~ photoelectrically converting wavelength division multiplexed transmission lights ~~consisting of~~ comprising signal lights of a plurality of wavelengths having undergone modulation with mutually different frequencies, after causing the lights to be transmitted by optical filters having a plurality of wavelength pass bands, and causing said photoelectrically converted electrical signals to be transmitted by first band pass filters, a ~~the~~ pass band of each of which ~~is~~ comprises said modulation frequency; and

~~a step of~~ detecting ~~the~~ an output level of the pass band of each of said first band pass filters and thereby detecting any fluctuation in each of the wavelengths said wavelength division multiplexed transmission lights contain,

wherein a stop band of each of said wavelength pass bands in said optical filters respectively coincides with a center modulation frequency of one of said mutually different frequencies.

2. (Currently amended) The collective detection method for wavelength fluctuations, as claimed in Claim 1, further ~~including~~ comprising:

~~a step of~~ branching a part of said wavelength division multiplexed transmission lights, photoelectrically converting the branched lights and causing said photoelectrically converted electrical signals to be transmitted by second band pass filters having ~~the~~ same

characteristics as said first band pass filters; and

~~a step of~~ dividing, before detecting ~~the~~ an output level of the pass band of each of said first band pass filters, ~~the~~ an output level of the pass bands of said first band pass filters by ~~the~~ output levels of the pass bands of the respectively matching ones of said second band pass filters.

3-4. (Canceled)

5. (Currently amended) A collective detection system for wavelength fluctuations for use in a wavelength division multiplexing optical communication system ~~is provided with~~, said collective detection system comprising:

~~an~~ optical filtering means having a plurality of wavelength pass bands for transmitting wavelength division multiplexed transmission lights ~~consisting of~~ comprising a plurality of signal lights having undergone modulation with mutually different frequencies, each said modulation in said mutually different frequencies respectively having a center modulation frequency, each wavelength pass band in said optical filtering means having a shorter-wavelength stop band and a longer-wavelength stop band, and one of said shorter-wavelength stop band and said longer-wavelength stop band of each said wavelength pass band coincides with a respective one of said center modulation frequencies;

~~a~~ means for collectively receiving and photoelectrically converting the lights transmitted by said optical filtering means;

first band pass filtering means each respectively having as ~~its~~ a pass band said modulation frequency of each of said photoelectrically converted electrical signals; and

a means for detecting ~~the~~ an output level of the pass band of each of said band pass filtering means and detecting any fluctuation in each of ~~the~~ wavelengths said wavelength division multiplexed transmission lights contain.

6. (Currently amended) The collective detection system for wavelength fluctuations, as claimed in Claim 5, further ~~provided with~~ comprising:

second band pass filtering means having ~~the~~ same characteristics as said first band pass filtering means for branching part of said wavelength division multiplexed transmission lights, photoelectrically converting the branched lights and transmitting said photoelectrically converted electrical signals; and

~~a~~ means for dividing, before detecting the output level of the pass band of each of said first band pass filters, the output level of the pass bands of said first band pass filters by ~~the~~ an output levels of the pass bands of the respectively matching ones of said second band pass filters.

7-8. (Canceled)

9. (Currently amended) The collective detection system for wavelength fluctuations, as claimed in Claim 5, wherein said band pass filtering means ~~consists of~~ comprises a plurality of band pass filters arranged in parallel.

10. (Currently amended) The collective detection system for wavelength fluctuations, as claimed in Claim 5, wherein said band pass filtering means ~~are provided with~~ comprises:

~~a~~ means for digitally converting ~~the~~ output signals of said photoelectric conversion means into digital signals; and

~~a~~ signal processing means having a digital filtering function for said digital signals.

11. (Currently amended) A wavelength division multiplexing optical transmission apparatus for stabilizing wavelengths by feeding back outputs of detection of wavelength fluctuations ~~provided with~~ , said apparatus comprising:

a plurality of optical transmission means, each comprising a semiconductor laser for oscillating signal lights having different wavelengths and modulated with different frequencies and a temperature controller for controlling the temperature of said semiconductor laser;

~~a~~ wavelength division multiplexing means for multiplexing said plurality of signal lights into wavelength division multiplexed transmission lights and sending them out;

~~a~~ means for branching part of said wavelength division multiplexed transmission lights;

~~an~~ optical filtering means having a plurality of pass bands and transmitting the branched component of said wavelength division multiplexed transmission lights, a stop band of each said pass band coinciding respectively with a center modulation frequency of one of said optical transmission means;

~~a~~ means for collectively receiving and photoelectrically converting ~~the~~ lights transmitted by said optical filtering means; and

first band pass filtering means having as their respective pass bands said photoelectrically converted electrical signals, and each supplying ~~the~~ an output of the pass

band to said temperature controller for controlling ~~the~~ a temperature of said semiconductor laser modulated with ~~the~~ a matching frequency, wherein:

each of said temperature controllers controls the temperature of the matching one of said semiconductor lasers so as to keep ~~the~~ outputs of said first band pass filtering means at a prescribed level and thereby stabilizes each of ~~the~~ wavelengths said wavelength division multiplexed transmission lights contain.

12. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 11, further ~~provided with~~ comprising:

second band pass filtering means, having ~~the~~ same characteristics as said first band pass filtering means, for further branching and photoelectrically converting part of said wavelength division multiplexed transmission lights and transmitting photoelectrically converted electrical signals; and

~~a~~ means for dividing, before supplying the outputs of the pass band of each of said first band pass filtering means to said temperature controllers, ~~the~~ output levels of the pass bands of said first band pass filtering means by the output levels of the pass bands of the respectively matching ones of said second band pass filtering means.

13-14. (Canceled)

15. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 11, wherein~~:~~ said band pass filtering means ~~consist of~~ comprise a plurality of electrical band pass filters arranged in parallel.

16. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 11, wherein~~:~~ said band pass filtering means ~~are provided with~~ comprises:

means for digitally converting the output signals of said photoelectric conversion means into digital signals; and

signal processing means having a digital filtering function for said digital signals.

17. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 11, wherein~~:~~ said optical filtering means ~~are~~ comprises arrayed waveguide grating (AWG) type spectral elements.

18. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 11, wherein~~:~~ said optical filtering means comprises fiber ~~Bragg grating (FBG) type~~ spectral elements.

19. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 11, wherein~~:~~ said optical filtering means ~~are~~ comprises Fabry-Perot etalon type spectral elements.

20. (Currently amended) A wavelength division multiplexing optical transmission apparatus for stabilizing wavelengths by feeding back outputs of detection of wavelength fluctuations ~~provided with~~ , said apparatus comprising:

a plurality of optical transmission means, each comprising a semiconductor laser for oscillating signal lights having different wavelengths and modulated with different frequencies and a temperature controller for controlling ~~the~~ a temperature of said semiconductor laser;

~~a~~ wavelength division multiplexing means for multiplexing said plurality of signal lights into wavelength division multiplexed transmission lights and sending them out;

~~a~~ means for branching part of said wavelength division multiplexed transmission lights;

~~an~~ optical filtering means having a plurality of pass bands and transmitting the branched component of said wavelength division multiplexed transmission lights, a stop band of each said pass band coinciding respectively with a center modulation frequency of one of said optical transmission means;

~~a~~ means for collectively receiving and photoelectrically converting ~~the~~ lights transmitted by said optical filtering means; and

first band pass filtering means having as their respective pass bands said photoelectrically converted electrical signals, and each supplying ~~the~~ an output of the pass band to said temperature controller for controlling the temperature of said semiconductor laser modulated with the matching frequency, wherein:

each of said temperature controllers causes the temperature of the matching one of said semiconductor lasers to fluctuate at a low frequency and controls the temperature of said semiconductor laser so as to minimize said low frequency outputs of said first band pass filtering means and thereby stabilizes each of the wavelengths said wavelength division multiplexed transmission lights contain.

21. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 20, further ~~provided with~~ comprising:

second band pass filtering means, having ~~the~~ same characteristics as said first band pass filtering means, for further branching and photoelectrically converting part of said wavelength division multiplexed transmission lights and transmitting photoelectrically converted electrical signals; and

~~a~~ means for dividing, before supplying the outputs of the pass band of each of said first band pass filtering means to said temperature controllers, ~~the~~ output levels of ~~the~~ pass bands of said first band pass filtering means by ~~the~~ output levels of ~~the~~ pass bands of ~~the~~ respectively matching ones of said second band pass filtering means.

22-23. (Canceled)

24. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 20, wherein ~~:~~ said band pass filtering means ~~consist of~~ comprises a plurality of electrical band pass filters arranged in parallel.

25. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 20, ~~wherein:~~ wherein said band pass filtering means ~~are provided with~~ comprises:

means for digitally converting the output signals of said photoelectric conversion means into digital signals; and

signal processing means having a digital filtering function for said digital signals.

26. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 20, wherein~~:~~ said optical filtering means ~~are~~ comprise arrayed waveguide grating (AWG) type spectral elements.

27. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 20, wherein~~:~~ said optical filtering means comprise fiber ~~Bragg grating (FBG) type~~ spectral elements.

28. (Currently amended) The wavelength division multiplexing optical transmission apparatus, as claimed in Claim 20, wherein~~:~~ said optical filtering means ~~are~~ comprise Fabry-Perot etalon type spectral elements.

29. (New) A circuit for use in detecting wavelength fluctuations in a wavelength division multiplexing optical communication system, said circuit comprising:

an optical filter having a plurality of wavelength pass bands for transmitting wavelength division multiplexed transmission lights comprising a plurality of signal lights having undergone modulation with mutually different frequencies,

each said modulation in said mutually different frequencies respectively having a center modulation frequency, each wavelength pass band in said optical filter having a shorter-wavelength stop band and a longer-wavelength stop band, and one of said shorter-wavelength stop band and said longer-wavelength stop band of each said wavelength pass

band has been pre-set to coincide with a respective one of said center modulation frequencies.

30. (New) The circuit of claim 29, further comprising:

a first photodetector collectively receiving and photoelectrically converting the lights transmitted by said optical filter; and

a plurality of first band pass filters, each respectively having as a pass band said modulation frequency of each of said photoelectrically converted electrical signals.

31. (New) The circuit of claim 30, further comprising:

a second photodetector collectively receiving and photoelectrically converting the plurality of signal lights having undergone modulation with mutually different frequencies ter;

a plurality of second band pass filters, each respectively having as a pass band said modulation frequency of each of said photoelectrically converted electrical signals from said second photo detector; and

a plurality of comparators, each receiving an output of one of said first band pass filters to compare with an output of a respective one of said second band pass filters.

32. (New) A circuit for use in detecting wavelength fluctuations in a wavelength division multiplexing optical communication system, said circuit comprising:

an optical filter having a plurality of wavelength pass bands for transmitting wavelength division multiplexed transmission lights comprising a plurality of signal lights having undergone modulation with mutually different frequencies,

each said modulation in said mutually different frequencies respectively having a center modulation frequency,

wherein each wavelength pass band in said optical filter has a center of said pass band that is shifted from said center modulation frequency.

33. (New) A wavelength division multiplexing optical transmission apparatus, comprising:

a plurality of optical transmitters, each comprising a semiconductor laser for oscillating signal lights having different wavelengths and modulated with different frequencies and a temperature controller for controlling a temperature of said semiconductor laser;

a wavelength division multiplexer for multiplexing said plurality of signal lights into wavelength division multiplexed transmission lights and sending them out;

an optical coupler for branching part of said wavelength division multiplexed transmission lights;

an optical filter having a plurality of pass bands and transmitting the branched component of said wavelength division multiplexed transmission lights, said pass bands having a periodicity and each said pass band having a center wavelength and two wavelengths at a 3dB loss relative to a strength at said center wavelength, a first of said two wavelengths being on a longer wavelength side of said center wavelength and a second of said two wavelengths being on a shorter wavelength side of said center wavelength;

a photodiode that collectively receives and photoelectrically converts lights transmitted by said optical filter; and

first band pass filters having as their respective pass bands said photoelectrically

converted electrical signals, and each supplying an output of the pass band to said temperature controllers for controlling a temperature of said semiconductor laser modulated with a matching frequency,

wherein each of said temperature controllers controls the temperature of the matching one of said semiconductor lasers so as to keep outputs of said first band pass filtering means at a prescribed level and thereby stabilizes each of wavelengths said wavelength division multiplexed transmission lights contain, and one of the following initial settings is made:

said center wavelength of each said optical filter pass band is pre-set so that said 3 dB wavelength on said longer wavelength side coincides with an oscillation frequency of a corresponding optical transmitter; and

an oscillation frequency of each said optical transmitter is pre-set to coincide with said 3 dB wavelength on said longer wavelength side of a corresponding one of said optical filters.